Page 2

IN THE CLAIMS:

Please cancel claims 3 and 7-9 without prejudice.

1. (Previously Presented) A fuel cell comprising:

a first compartment containing a cathode;

a source of hydrogen atom associated with said first compartment;

a catalyst having a net enthalpy of reaction of at least m27 eV, where m is an

integer, for catalyzing the formation of hydrino atoms from said hydrogen atoms;

a second compartment containing an anode; and

a salt bridge between said anode and said cathode.

2. (Previously Presented) A fuel cell comprising:

a vessel having a first compartment containing a cathode and increased binding energy hydrogen atom having a binding energy of about 13.6/n² eV, where n is a fraction whose numerator is 1 and denominator is an integer greater than 1;

a second compartment containing an anode and a reductant; and a salt bridge connecting the first compartment and the second compartment.

- 3. (Cancelled)
- 4. (Original) A fuel cell of claim 2 further comprising a source of increased binding energy hydrogen atom for supplying said increased binding energy hydrogen atom.
- 5. (Original) A fuel cell of claim 4 wherein said source of increased binding energy hydrogen atom comprises a compound including at least one increased binding energy hydrogen species selected from the group consisting of:

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an increased binding energy hydride ion having a binding energy greater than 0.8 eV,

said increased binding energy hydrogen atom,

an increased binding energy hydrogen molecule having a first binding energy of about

15.5/n² eV, and

an increased binding energy molecular hydrogen ion having a first binding energy of

about 16.4/n² eV.

6. (Original) A fuel cell of claim 4 wherein said increased binding energy atomic hydrogen

is provided by at least one source cell selected from the group consisting of an electrolytic cell,

a gas cell, a gas discharge cell, and a plasma torch cell, and the fuel cell further comprises a

passageway for said increased binding energy hydrogen atom communicating between said

source cell and the fuel cell first compartment.

Claims 7-9 (Cancelled)

10. (Original) A method for generating electricity in a vessel having a first compartment

containing a cathode, a second compartment containing an anode and a reductant, and a salt

bridge connecting the first compartment and the second compartment, said method

comprising the steps of

supplying increased binding energy hydrogen atom having a binding energy of about

13.6/n² eV, where n is a fraction whose numerator is 1 and denominator is an integer greater

than 1, to said first compartment, and

reacting said increased binding energy hydrogen atom at the cathode with electrons

supplied by the reductant in said first compartment, thereby producing an increased binding

energy hydride ion having a binding energy greater than about 0.8 eV in said first

compartment.

11. (Original) A method of claim 10 wherein said step of supplying includes releasing said

Page 4

atomic hydrogen by thermal decomposition upon heating a compound including at least one increased binding energy hydrogen species selected from the group consisting of the increased binding energy hydride ion, the increased binding energy hydrogen atom, an increased binding energy hydrogen molecule having a first binding energy of about 15.5/n²eV, and an increased binding energy molecular hydrogen ion having a first binding energy of about 16.4/n² eV.

- 12. (Original) A method of claim 11 wherein said step of reacting includes contacting the electrons with said compound including at least one of said increased binding energy hydrogen species.
- 13. (Origial) A method of claim 11 wherein said step of supplying includes reacting said compound including at least one of said increased binding energy hydrogen species with an element replacing from said compound at least one of said increased binding energy hydrogen species.
- 14. (Original) A method of claim 11 wherein said compound is substantially pure.
- 15. (Previously Presented) A fuel cell comprising:
 - a vessel having first and second compartments;
 - a source of hydrino atoms associated with said first compartment;
 - a cathode in said first compartment;
 - an anode in said second compartment; and
 - a salt bridge connecting said anode and said cathode.
- 16. (Currently Amended) A fuel cell comprising:
 - a vessel having first and second compartments;
 - a source of hydrogen atoms associated with said first compartment;

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a cathode in said first compartment;
a source of catalyst for forming hydrino atoms from said hydrogen atoms,
said source of catalyst comprising a salt of rubidium;
an anode in said second compartment; and

17. (Previously Presented) A fuel cell according to claim 16, wherein said salt of rubidium is selected from the group consisting of RbOH, Rb₂SO₄, Rb₂CO₃, and Rb₃PO₄.

a salt bridge connecting said anode and said cathode.

18. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

a source of catalyst for forming hydrino atoms from said hydrogen atoms,

said source of catalyst comprising a salt of potassium;

an anode in said second compartment; and

a salt bridge connecting said anode and said cathode.

- 19. (Previously Presented) A fuel cell according to claim 18, wherein said salt of potassium is selected from the group consisting of KOH, K₂SO₄, K₂CO₃ and K₃PO₄.
- 20. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

a source of catalyst for forming hydrino atoms from said hydrogen atoms,

said source of catalyst comprising a salt of titanium

an anode in said second compartment; and

Page 6

a salt bridge connecting said anode and said cathode.

- 21. (Previously Presented) A fuel cell according to claim 20, wherein said salt of titanium is selected from the group consisting of TiF₂, TiCl₂, TiBr₂, Til₂ and TiS.
- 22. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said source of catalyst comprising at least one selected from the group consisting of (Al^{2+}) , (Ar^{+}) , (Ti^{2+}) , (As^{2+}) , (Rb^{+}) , (Mo^{2+}) , (Ru^{2+}) , (In^{2+}) , and (Te^{2+}) .

23. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst being capable of providing a net enthalpy of reaction in the range of 26.8 to 28.5 eV.

24. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

Page 7

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst comprising at least one pair of ions selected from the group consisting of: (Sn^{4+}, Si^{4+}) , (Pr^{3+}, Ca^{2+}) , (Sr^{2+}, Cr^{2+}) , (Cr^{3+}, Tb^{3+}) , (Sb^{3+}, Co^{2+}) , (Bi^{3+}, Ni^{2+}) , (Pd^{2+}, In^{+}) , (La^{3+}, Dy^{3+}) , (La^{3+}, Ho^{3+}) , (K^{+}, K^{+}) , (V^{3+}, Pd^{2+}) , (Lu^{3+}, Zn^{2+}) , (As^{3+}, Ho^{3+}) , (Mo^{5+}, Sn^{4+}) , (Sb^{3+}, Cd^{2+}) , (Ag^{2+}, Ag^{4+}) , (La^{3+}, Er^{3+}) , (V^{4+}, B^{3+}) , (Fe^{3+}, Ti^{3+}) , (Co^{2+}, Ti^{+}) , (Bi^{3+}, Zn^{2+}) , (As^{3+}, Dy^{3+}) , (Ho^{3+}, Mg^{2+}) , (K^{+}, Rb^{+}) , (Cr^{3+}, Pr^{3+}) , (Sr^{2+}, Fe^{2+}) , (Ni^{2+}, Cu^{+}) , (Li^{+}, Pb^{2+}) , (Sr^{2+}, Mo^{2+}) , (Y^{3+}, Zr^{4+}) , (Cd^{2+}, Ba^{2+}) , (Ho^{3+}, Pb^{2+}) , (Eu^{3+}, Mg^{2+}) , (Er^{3+}, Mg^{2+}) , (Bi^{4+}, Al^{3+}) , (Ca^{2+}, Sm^{3+}) , (V^{3+}, La^{3+}) , (Gd^{3+}, Cr^{2+}) , (Mn^{2+}, Ti^{+}) , (Yb^{3+}, Fe^{2+}) , (Ni^{2+}, Ag^{+}) , (Zn^{2+}, Yb^{2+}) , (Se^{4+}, Sn^{4+}) , (Sb^{3+}, Bi^{2+}) , and (Eu^{3+}, Pb^{2+}) .

25. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst comprising oxygen in combination with at least one atom selected from the group consisting of Cu, As, Pd, Te, Cs and Pt.

26. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

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a salt bridge connecting said anode and said cathode; and a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst comprising at least one pair selected from the group consisting of: (B, Li⁺), (S, Li⁺), (Br, Li⁺), (Pm⁺, Li⁺), (Sm⁺, Li⁺), (Tb⁺, Li⁺), (Dy⁺, Li⁺), (Sb⁺, H⁺) and (Bi⁺, H⁺).

27. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst comprising at least one pair selected from the group consisting of:

```
(0
                                                              (AI
    0+
             Co 3+
                                   1+
                                            Nd 4+
                                                                   2+
                                                                            CI 5+
He
             Ga 3+
                                                              (AI
He
    0+
                     );
                              (0
                                    1+
                                            Tb 4+
                                                    );
                                                                   4+
                                                                           Mn 8+
                                                                                   );
                                                              (Si
             Ni 3+
                              (0
                                   2+
                                            Ne 3+
                                                                   1+
                                                                           Mg 2+
Li
    0+
                     ):
                                                                                   );
                                                    );
             Xe 3+
                              (0
                                   3+
                                            Sb 6+
                                                              (Si
                                                                   1+
                                                                            V 2+
Li
    0+
                     );
                                                    );
                                                                                    );
Li
    0+
             Hg 3+
                     );
                              (0
                                   4+
                                            Fe 7+
                                                    );
                                                              (Si
                                                                   1+
                                                                            Tc 2+
                                                                                    );
Li
     1+
             Na 4+
                              (F
                                   0+
                                            Al 2+
                                                              (Si
                                                                   1+
                                                                            Sn 2+
                     );
                                                                                    );
                                                    );
                              (F
                                            Si 2+
Li
     1+
             Υ
                6+
                                   0+
                                                              (Si
                                                                   1+
                                                                            Hf 2+
                                                                                    );
                     );
                                                    );
                              (F
    1+
             Bi 6+
                                   0+
                                            Fe 2+
                                                              (Si
                                                                   1+
                                                                            Pb 2+
Вe
                     ):
                                                    );
                                                                                   );
                                            Co 2+ );
Ве
    2+
             Al 6+
                     );
                              (F
                                   0+
                                                              (Si
                                                                   2+
                                                                           Co 3+
                                                                                   );
     1+
             C 2+
                              (F
                                   0+
                                            Ru 2+
                                                              (Si
                                                                   2+
                                                                           Ga 3+
В
                     );
                                                    );
                                                                                    );
                              (F
В
    1+
             K 2+
                                   0+
                                            In 2+
                                                              (Si
                                                                   2+
                                                                           Ge 3+
                     );
                                                                                   );
                                                    );
                              (F
В
    1+
             Ho 3+
                                   0+
                                            Sb 2+
                                                              (Si
                                                                   2+
                                                                            TI 3+
                     );
                                                    );
                                                                                   );
                              (F
В
    1+
             Er 3+
                                   0+
                                            Bi 2+
                                                              (Si
                                                                   3+
                                                                            Ni 6+
                     );
                                                    );
                                                                                    );
В
             Tm 3+
                              (F
                                            Sb 4+
    1+
                     );
                                   1+
                                                    );
                                                              (Si
                                                                   3+
                                                                           Rb 7+
                                                                                   );
                              (F
В
                                                              (Si
     1+
             Lu 3+
                     );
                                   3+
                                            Fe 6+
                                                   );
                                                                   4+
                                                                            AI 6+
                                                                                   ):
С
     1+
             N 2+
                              (Ne 0+
                                                              (P
                                                                   1+
                     );
                                           Sm 3+
                                                                           Mg 2+
                                                    );
                                                                                   );
С
                                                              (P
    1+
             V
                3+
                     );
                              (Ne
                                   0+
                                            Dy 3+
                                                    ):
                                                                   1+
                                                                            Tc 2+
                                                                                   );
С
    1+
             Tc 3+
                              (Ne 0+
                                            Ho 3+
                                                              (P
                                                                   1+
                                                                            Sn 2+
                     );
                                                    );
                                                                                   );
С
                                                              (P
    1+
             Ru 3+
                     );
                              (Ne 0+
                                            Er 3+
                                                    );
                                                                   1+
                                                                            Hf 2+
                                                                                   );
С
    1+
             Sn 3+
                                                              (P
                                                                   1+
                              (Ne 0+
                                            Lu 3+
                                                                            Pb 2+
                     );
                                                    );
                                                                                   );
С
    2+
             Mn 4+
                                            N 3+
                                                              (P
                                                                   2+
                                                                            Ni 3+
                     );
                              (Ne
                                  1+
                                                    );
                                                                                   );
С
                                                              (P
    2+
             Co 4+
                     );
                              (Ne 1+
                                            K 3+
                                                   );
                                                                   2+
                                                                           Cd 3+
                                                                                   ):
Ν
    0+
             Sr 2+
                     );
                              (Ne 1+
                                            V 4+
                                                   );
                                                              (P
                                                                   2+
                                                                           Xe 3+
                                                                                   );
Ν
             La 2+
                              (Ne 2+
                                            0 4+
                                                              (P
                                                                   3+
    0+
                     );
                                                                           Nb 5+
                                                    );
                                                                                   );
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(Ν	0+	, Ce 2+);	(Na 0+ ,	Al 2+);	(P 5+ ,	C 5+);
ì	N	0+	, Pr 2+);	(Na 0+ ,	Si 2+);	(S 1+ ,	P 2+);
``			•	•	• • • • • • • • • • • • • • • • • • • •	•	,.
(N	0+	, Nd 2+);	(Na 0+ ,	Fe 2+);	(S 1+ ,	Se 2+);
(Ν	0+	, Pm 2+);	(Na 0+ ,	Co 2+);	(S 1+ ,	La 3+);
(Ν	0+	, Sm 2+);	(Na 0+ ,	Ru 2+);	(S 1+ ,	Ce 3+);
i	N	0+	, Eu 2+);	(Na 0+	In 2+);	(S 1+ ,	Au 2+);
ì	N	1+	, O 2+);	(Na 0+ ,	Sb 2+);	(S 2+ ,	• •
,				, ,	• •	-	• .
(N	1+	, Si 3+);	(Na 0+ ,	Bi 2+);	(S 2+ ,	Cd 3+);
(Ν	1+	, P 3+);	(Na 2+ ,	Ti 5+);	(S 3+ ,	Cu 4+);
(Ν	1+	, Mn 3+);	(Na 2+ ,	Kr 6+);	(S 3+ ,	Rb 4+);
(N	1+	, Rh 3+);	(Na 3+ ,	Y 7+);	(S 4+ ,	O 4+);
ì	N	2+	, F 3+);	(Mg 1+	Rb 3+);	(CI 1+ ,	C 2+);
7	N	3+	· ('	(Mg 1+	_ ′′	(Cl 1+ ,	• •
,				, • ·	• •	•	• • • • • • • • • • • • • • • • • • • •
(0	0+	, Ti 2+);	(Mg 3+ ,	Ne 5+);	(CI 1+ ,	Zr 3+);
(0	0+	, V 2+);	(Mg 6+ ,	Cl 8+);	(Cl 1+ ,	Eu 3+);
(0	0+	, Nb 2+);	(Al 1+ ,	Sc 2+);	(Cl 1+ ,	Tm 3+);
(0	0+	, Hf 2+);	(Al 1+ ,	Zr 2+);	(Cl 2+ ,	Te 4+);
ì	0	1+	, Ne 2+);	(Al 1+ ,	Lu 2+);	(Cl 2+ ,	Sm 4+);
ì	ō	1+	, Ca 3+);	(Al 2+ ,	S 5+);	(Cl 2+ ,	Gd 4+);
7	CI	2+		(Sc 4+	• •	(Mn 4+ ,	• •
(•	• • • • • • • • • • • • • • • • • • • •	•	•
(CI	2+	, Er 4+);	(Ti 2+ ,	Ar 2+);	(Fe 1+ ,	Sc 2+);
(CI	3+	, Cl 4+);	(Ti 2+ ,	Mo 3+);	(Fe 1+ ,	Y 2+);
(CI	5+	, Ni 6+);	(Ti 4+ ,	O 5+);	(Fe 1+ ,	Yb 2+);
(CI	5+	, Cu 6+);	(Ti 4+ ,	Zn 6+);	(Fe 1+ ,	Lu 2+);
(CI	5+	, Rb 7+);	(Ti 4+ ,	As 6+);	(Fe 2+ ,	S 3+);
ì	Ar	0+	, Ba 2+);	(V 1+ ,	Sr 2+);	(Fe 2+ ,	Cu 3+);
ì	Ar	0+	, Ce 2+);	(V 1+ ,	La 2+);	(Fe 2+ ,	Zn 3+);
`	Ar	0+	• • • • • • • • • • • • • • • • • • • •	(V 1+	• • • • • • • • • • • • • • • • • • • •	(Fe 2+ ,	•
`			•		•	•	• •
(Ar	0+	, Nd 2+);	(V 1+ ,	Pr 2+);	(Fe 2+ ,	Zr 4+);
(Ar	0+	, Ra 2+);	(V 1+ ,	Nd 2+);	(Fe 2+ ,	Ce 4+);
(Ar	1+	, Ti 3+);	(V 1+ ,	Pm 2+);	(Fe 5+ ,	Sr 7+);
(Ar	2+	, C 3+);	(V 1+ ,	Sm 2+);	(Co 1+ ,	Mg 2+);
i	Ar	3+	, K 4+);	(V 1+ ,	Eu 2+);	(Co 1+ ,	Cr 2+);
ì	Ar	3+	, Br 5+);	(V 2+ ,	O 2+);	(Co 1+ ,	Mn 2+);
	Ar	3+	•	-	• • • • • • • • • • • • • • • • • • • •		* *
(•	• •	, ,	•	• • • • • • • • • • • • • • • • • • • •
(Ar	4+	, Y 5+);	(V 3+ ,	Co 4+);	(Co 1+ ,	Tc 2+);
(K	1+	, Si 3+);	(V 4+ ,	Ar 6+);	(Co 1+ ,	Pb 2+);
(K	1+	, P 3+);	(V 4+ ,	Sc 5+);	(Co 2+ ,	Cu 3+);
(K	1+	, Mn 3+);	(V 5+ ,	Mg 5+);	(Co 2+ ,	Zn 3+);
Ì	K	1+	, Ge 3+);	(V 6+ ,	Sc 8+);	(Co 2+ ,	Br 3+);
ì	K	1+	, Rh 3+);	(V 6+ ,	Br 8+);	(Co 2+ ,	-
	K	1+	•		•		•
(•	(Cr 1+ ,	Sc 2+);	(Co 2+ ,	Ag 3+);
(K	2+	He 2+);	(Cr 1+ ,	Ti 2+);	(Co 2+ ,	Ce 4+);
(K	2+	, Si 4+);	(Cr 1+ ,	Zr 2+);	(Co 2+ ,	Hf 4+);
(K	2+	, As 4+);	(Cr 1+ ,	Lu 2+);	(Co 4+ ,	Nb 6+);
(K	3+	, P 5+);	(Cr 2+ ,	F 2+);	(Co 5+ ,	Sc 6+);
(K	3+	, Zr 5+);	(Cr 2+	Na 2+);	(Ni 1+ ,	Co 2+);
ì	K	4+	, Rb 6+);	(Cr 2+ ,	Se 3+);	(Ni 1+ ,	Ni 2+);
ì	ĸ	5+	, Mg 4+);	(Cr 2+ ,	Pd 3+);	(Ni 1+ ,	Rh 2+);
•		-	, , , , , , , , , , , , , , , , , , , ,	, - · - ,	· /,	V 1	, - /,

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5+
             Kr 7+
                                     2+
                                                                               Cd 2+
Κ
                      );
                               (Cr
                                               1
                                                  3+
                                                                 (Ni
                                                      );
              Υ
                 8+
                                     2+
Κ
     6+
                      );
                                (Cr
                                              Hg 3+
                                                      );
                                                                 (Ni
                                                                       1+
                                                                                Sb 2+
                                                                                        );
Ca
     1+
              С
                 2+
                      );
                                (Cr
                                     3+
                                              O 3+
                                                       );
                                                                 (Ni
                                                                      2+
                                                                               Ne 2+
                                                                                        );
             Sm 3+
                               (Cr
                                     3+
                                              Ni 4+
                                                                       2+
Ca
     1+
                                                                 (Ni
                                                                               Ca 3+
                      );
                                                                                        );
                                                      );
Ca
     1+
             Dy 3+
                               (Cr
                                     4+
                                              0 4+
                                                                 (Ni
                                                                       2+
                                                                               Nd 4+
                      );
                                                      );
                                                                                        );
             Ho 3+
                                     5+
Ca
     1+
                      );
                                (Cr
                                              Ne 5+
                                                       );
                                                                 (Ni
                                                                       2+
                                                                                Tb 4+
                                                                                        );
Ca
     1+
             Er 3+
                      );
                                (Cr
                                     5+
                                              Fe 7+
                                                                 (Ni
                                                                       4+
                                                                               Rb 6+
                                                                                        );
                                                      );
     1+
             Tm 3+
                                              V 2+
Ca
                                (Mn
                                    1+
                                                                 (Ni
                                                                       6+
                                                                                Ar 8+
                                                      );
                                                                                        );
Ca
                                              Nb 2+
     1+
             Lu 3+
                                     1+
                                                                               Ag 2+
                      );
                                (Mn
                                                      );
                                                                 (Cu
                                                                       1+
                                                                                        );
Ca
    2+
              0
                 3+
                                              Sn 2+
                                                                                1 2+
                      );
                                (Mn 1+
                                                      );
                                                                 (Cu
                                                                      1+
                                                                                        );
Ca
    2+
             Ni 4+
                                              Hf 2+
                                                                               Cs 2+
                      );
                                (Mn 1+
                                                      );
                                                                 (Cu
                                                                      1+
                                                                                        );
                                                                               Au 2+
Ca
     3+
             Mn 5+
                               (Mn 2+
                                              Cu 3+
                                                                 (Cu
                                                                      1+
                      );
                                                      );
                                                                                        );
                                              Zn 3+
Ca
     3+
             Rb 5+
                                (Mn 2+
                                                                 (Cu
                                                                               Hg 2+
                      );
                                                      );
                                                                      1+
                                                                                        );
     4+
             CI 6+
                                (Mn 2+
                                              Br 3+
Ca
                      );
                                                      );
                                                                 (Cu
                                                                      2+
                                                                               Sm 4+
Ca
    4+
             Ar 6+
                                (Mn 2+
                                              Zr 4+
                                                                 (Cu
                                                                      2+
                                                                               Gd 4+
                      );
                                                                                        );
                                                      );
Ca
             Sc 5+
                                              Ce 4+
                                                                      2+
    4+
                      );
                                (Mn 2+
                                                      );
                                                                 (Cu
                                                                                Dy 4+
                                                                                        );
Ca
    5+
              Y 7+
                                              Hf 4+
                                (Mn 2+
                                                                 (Cu 3+
                                                                                K 4+
                      );
                                                      );
                                                                                        );
Sc
    2+
              Ti 4+
                               (Mn 3+
                                              Mg 3+
                                                                 (Cu 3+
                                                                                Br 5+
                      );
                                                      );
                                                                                        );
Sc
    2+
             Bi 4+
                                (Mn 3+
                                              Te 5+
                                                                 (Cu
                                                                      3+
                                                                               Mo 5+
                      );
                                                       );
                                                                                        );
                                              Fe 2+
Cu
    4+
             Rb 6+
                                (Se
                                                                               Ga 2+
                      );
                                    1+
                                                                 (Sr
                                                                       1+
                                                                                        );
                                                      );
Cu
     5+
             Mn
                 7+
                      );
                                (Se
                                     1+
                                              Co 2+
                                                                 (Sr
                                                                       1+
                                                                                Te 2+
                                                      );
                                                                                        );
              Р
                 2+
                                              Ge 2+
                                                                                Pt 2+
Zn
     1+
                               (Se
                                     1+
                                                                       1+
                      );
                                                      );
                                                                 (Sr
                                                                                        );
Zn
     1+
              1
                 2+
                      );
                               (Se
                                    1+
                                              Ru 2+
                                                      );
                                                                 (Sr
                                                                       1+
                                                                                TI 2+
                                                                                        );
Zn
     1+
             La 3+
                                (Se
                                              In 2+
                                                                       2+
                                                                                C 3+
                      );
                                    1+
                                                      );
                                                                 (Sr
                                                                                        );
Zn
     1+
             Au 2+
                               (Se
                                              Bi 2+
                                                                 (Sr
                                                                       2+
                      );
                                    1+
                                                                               Mo 4+
                                                                                        );
                                                      );
Zn
     1+
             Hg 2+
                                (Se
                                    2+
                                              Te 3+
                                                                 (Sr
                                                                       3+
                                                                                Ar 4+
                      );
                                                      );
                                                                                        );
    2+
Zn
              Ti 4+
                      );
                                (Se
                                     3+
                                              Br 4+
                                                                 (Sr
                                                                       3+
                                                                                Sr 4+
                                                      );
                                                                                        );
Zn
    2+
             Sn 4+
                                              Y 7+
                      );
                               (Se
                                     5+
                                                                 (Sr
                                                                       3+
                                                                                Sb 5+
                                                      );
                                                                                        );
                                              Р
                                                 2+
Zn
    2+
             Bi 4+
                                                                 (Sr
                                                                       3+
                                                                                Bi 5+
                      );
                               (Br
                                     1+
                                                      );
                                                                                        );
Zn
    3+
             As 5+
                                              1
                                                 2+
                      );
                               (Br
                                     1+
                                                      );
                                                                 (Sr
                                                                       4+
                                                                                Ar 5+
                                                                                        );
Zn
    4+
             Sr 6+
                      );
                               (Br
                                     1+
                                              La 3+
                                                      );
                                                                 (Sr
                                                                       4+
                                                                               Cu 5+
                                                                                        );
Zn
     5+
             Mn 7+
                                              Au 2+
                               (Br
                                     1+
                                                                 (Y
                                                                       2+
                                                                                Sr 3+
                      );
                                                      );
                                                                                        );
             Mo 8+
                                              He 2+
Zn
    6+
                      );
                               (Br
                                     3+
                                                                 (Y
                                                                       2+
                                                                               Cd 3+
                                                      );
                                                                                        );
                                              Si 4+
Ga
             Cr 2+
                                     3+
     1+
                      );
                               (Br
                                                      );
                                                                 (Y
                                                                       3+
                                                                                Se 5+
                                                                                        );
Ga
    1+
             Mn 2+
                      );
                               (Br
                                     3+
                                              Ge 4+
                                                      );
                                                                 (Y
                                                                       3+
                                                                               Pb 5+
                                                                                        );
Ga
    1+
             Fe 2+
                               (Br
                                     4+
                                              S 5+
                                                                 (Y
                                                                       4+
                                                                                Ti 5+
                      );
                                                      );
                                                                                        );
Ga
    1+
             Ge 2+
                                              CI 5+
                               (Br
                                     4+
                                                                 (Y
                                                                       4+
                      );
                                                      );
                                                                               Zn 5+
                                                                                        ):
             Mo 2+
Ga
    1+
                               (Br
                                     5+
                                              Sb 6+
                                                                 (Y
                                                                       5+
                                                                               Co 6+
                      );
                                                      );
                                                                                        );
Ga
    1+
             Ru 2+
                      );
                               (Br
                                     6+
                                              Ar 8+
                                                      );
                                                                 (Y
                                                                       6+
                                                                                K 7+
                                                                                        );
Ga
    1+
             Bi 2+
                               (Kr
                                     1+
                                              B 2+
                                                                 (Zr
                                                                       2+
                                                                                Ρ
                                                                                  2+
                      );
                                                      );
                                                                                        );
    2+
                                              S 2+
Ga
             Rb 3+
                      );
                               (Kr
                                     1+
                                                                 (Zr
                                                                       2+
                                                      );
                                                                               Ag 2+
                                                                                        );
    2+
Ga
             Eu 4+
                               (Kr
                                     1+
                                              Br 2+
                                                                 (Zr
                                                                       2+
                                                                                1 2+
                      );
                                                      );
                                                                                        );
Ga
    2+
             Tm 4+
                               (Kr
                                              Xe 2+
                                                                 (Zr
                      );
                                     1+
                                                      );
                                                                       2+
                                                                               Cs 2+
                                                                                        );
Ge
    1+
             Mg 2+
                               (Kr
                                     1+
                                              Nd 3+
                                                                       2+
                      );
                                                      );
                                                                 (Zr
                                                                               La 3+
                                                                                        );
             Mn 2+
Ge
    1+
                      );
                               (Kr
                                     1+
                                             Pm 3+
                                                                 (Zr
                                                                       2+
                                                                               Au 2+
                                                      );
                                                                                        );
Ge
    1+
             Tc 2+
                                     1+
                                              Tb 3+
                                                                       2+
                      );
                               (Kr
                                                                 (Zr
                                                                               Hg 2+
                                                      );
                                                                                        );
Ge
    1+
             Sn 2+
                               (Kr
                                     2+
                                              Kr 3+
                      );
                                                                 (Nb
                                                                      2+
                                                                                C 2+
                                                      );
                                                                                        );
             Pb 2+
Ge
    1+
                      );
                               (Kr
                                     2+
                                              Tb 4+
                                                      );
                                                                 (Nb
                                                                      2+
                                                                                K 2+
                                                                                        );
Ge 2+
              F 2+
                      );
                               (Kr
                                     3+
                                              O 3+
                                                                 (Nb
                                                                      2+
                                                      );
                                                                                Zr 3+
                                                                                        );
```

```
Na 2+
                               (Kr
                                    3+
                                             Ni 4+
                                                                (Nb
                                                                     2+
                                                                              Eu 3+
Ge 2+
                     );
                                                     );
Ge
    2+
             Se 3+
                     );
                               (Kr
                                    3+
                                             Kr 4+
                                                     );
                                                                (Nb
                                                                     2+
                                                                              Tm 3+
                                                                                      );
Ge
    2+
             Pd 3+
                               (Kr
                                     3+
                                             Nb 5+
                                                                (Nb
                                                                     2+
                                                                              Lu 3+
                     );
                                                     );
                                                                                      );
    2+
                 3+
                                             Zr 5+
Ge
              1
                               (Kr
                                    4+
                                                                (Nb
                                                                     3+
                                                                              Kr 3+
                     ):
                                                     ):
Ge
     3+
             V
                 5+
                               (Kr
                                    5+
                                             Sr 6+
                                                                (Nb
                                                                     3+
                                                                              Pr 4+
                     );
                                                     );
                                                                                      );
Ge
     3+
             Se 5+
                     );
                               (Kr
                                    6+
                                             Y 7+
                                                     );
                                                                (Nb
                                                                     3+
                                                                              Tb 4+
                                                                                      );
Ge
     3+
             Pb 5+
                                    1+
                                             Nb 3+
                                                                (Nb
                                                                              N 4+
                     );
                               (Rb
                                                                     4+
                                                                                      );
                                                     );
             Sc 2+
                                    2+
                                             Te 4+
As
     1+
                     );
                               (Rb
                                                                (Mo
                                                                    1+
                                                                              Ba 2+
                                                     );
                                                                                      );
              Υ
                 2+
                               (Rb
                                    2+
                                             Sm 4+
                                                                              Pr 2+
As
     1+
                      ):
                                                     );
                                                                (Mo
                                                                    1+
                                                                                      );
As
     1+
             Zr 2+
                               (Rb 2+
                                             Gd 4+
                                                                (Mo
                                                                              Nd 2+
                     );
                                                     );
                                                                    1+
                                                                                      );
As
     1+
             Lu 2+
                     );
                               (Rb 2+
                                             Dy 4+
                                                                (Mo
                                                                    1+
                                                                              Ra 2+
                                                     );
                                                                                      );
             Co 3+
                                             Ho 4+
As
     2+
                               (Rb 2+
                                                                (Mo. 2+
                                                                              Ru 3+
                     );
                                                     );
                                                                                      );
As
    2+
             Ga 3+
                               (Rb 2+
                                             Er 4+
                                                                              Sn 3+
                     );
                                                     );
                                                                (Mo 2+
                                                                                      );
As
     2+
             Ge 3+
                               (Rb
                                    3+
                                             Mg 3+
                                                                (Mo 3+
                                                                              Cr 4+
                     ):
                                                     );
                                                                                      );
             TI 3+
As
     2+
                               (Rb
                                    3+
                                             Te 5+
                                                                              Ge 4+
                     );
                                                     );
                                                                (Mo
                                                                     3+
                                                                                      );
As
     3+
             Fe 4+
                     );
                               (Rb
                                   5+
                                             Rb 6+
                                                     );
                                                                (Mo 4+
                                                                              Bi 5+
                                                                                      );
             Sb 6+
As
     4+
                               (Rb
                                   6+
                                             Te 7+
                     );
                                                     );
                                                                (Mo 5+
                                                                              Mn 6+
                                                                                      );
Se
     1+
             Al 2+
                               (Sr
                                    1+
                                             Be 2+
                                                                (Mo 6+
                                                                              0 6+
                     );
                                                     );
                                                                                      );
             Si 2+
                                             Zn 2+
Se
     1+
                               (Sr
                                    1+
                                                                (Mo
                                                                    6+
                                                                              Cr 7+
                     );
                                                     );
                                                                                      );
Tc
                                             Er 2+
     1+
             Sr 2+
                               (Sn
                                    1+
                                                                (Pr
                                                                     2+
                                                                              Xe 2+
                     );
                                                     );
                                                                                      );
Tc
     1+
             La 2+
                                    2+
                                             N 2+
                                                                (Pr
                                                                     2+
                                                                              Pr 3+
                     );
                               (Sn
                                                     );
                                                                                      );
             Ce 2+
                                             Ar 2+
                                                                     2+
Tc
     1+
                     );
                               (Sn
                                    2+
                                                     );
                                                                (Pr
                                                                              Nd 3+
                                                                                      );
Tc
     1+
             Pm 2+
                               (Sn 2+
                                             V 3+
                                                                (Pr
                                                                     2+
                     );
                                                                             Pm 3+
                                                     );
                                                                                      );
Tc
     1+
             Sm 2+
                               (Sn 2+
                                             Mo 3+
                                                                (Pr
                                                                     2+
                                                                              Gd 3+
                     );
                                                     );
                                                                                      );
Tc
     1+
             Eu 2+
                               (Sn
                                    3+
                                             Mn 4+
                                                                (Pr
                                                                     2+
                                                                              Tb 3+
                     );
                                                     );
                                                                                      );
             Tb 2+
Tc
     1+
                     );
                               (Sn
                                    3+
                                             Fe 4+
                                                                (Nd
                                                                     2+
                                                                             Sm 3+
                                                                                      );
                                                     );
             Dy 2+
Tc
                               (Sn
                                    3+
                                             Co 4+
                                                                (Nd
                                                                     2+
                                                                              Dy 3+
                                                     );
                                                                                      );
             Ca 2+
                                             Ti 3+
Ru
     1+
                               (Sb
                                    2+
                                                                (Nd
                                                                     2+
                                                                              Ho 3+
                     );
                                                                                      ):
                                                     );
             Eu 2+
Ru
     1+
                               (Sb 2+
                                             Sb 3+
                                                                (Nd 2+
                                                                              Er 3+
                     );
                                                     );
                                                                                      );
Ru
     1+
             Tb 2+
                     );
                               (Sb 2+
                                             Bi 3+
                                                     );
                                                                (Nd 2+
                                                                              Lu 3+
                                                                                      );
Ru
     1+
             Dy 2+
                               (Sb
                                   3+
                                             C 3+
                                                                              C 2+
                                                                (Pm 2+
                     );
                                                     );
                                                                                      );
             Ho 2+
                                             Sc 2+
Ru
     1+
                               (Te
                                    1+
                                                                (Pm 2+
                                                                              K 2+
                     );
                                                     );
                                                                                      );
     1+
             Er 2+
                                             Y 2+
Ru
                     );
                               (Te
                                    1+
                                                     );
                                                                (Pm 2+
                                                                              Zr 3+
Rh
     1+
             V 2+
                     );
                               (Te
                                    1+
                                             Gd 2+
                                                     );
                                                                (Pm 2+
                                                                              Eu 3+
                                                                                      );
Rh
     1+
             Nb 2+
                               (Te
                                    1+
                                             Tm 2+
                                                                (Pm 2+
                     );
                                                     );
                                                                              Tm 3+
                                                                                      );
Rh
     1+
             Sn 2+
                                             Yb 2+
                               (Te
                                    1+
                                                                (Sm 2+
                                                                              CI 2+
                     );
                                                     );
Rh
     1+
             Hf 2+
                               (Te
                                    1+
                                             Lu 2+
                                                                (Sm 2+
                                                                              Sc 3+
                     );
                                                     );
                                                                                      );
Pd
     1+
             Al 2+
                               (Te
                                    2+
                                             Sc 3+
                                                                (Sm 2+
                                                                              Yb 3+
                     );
                                                     );
                                                                                      );
Pd
             Si
                2+
                                             Kr 2+
     1+
                     );
                               (Te
                                    2+
                                                                (Eu
                                                                     2+
                                                                              Nb 3+
                                                     );
                                                                                      );
Pd
             Fe 2+
                                    2+
                                             Yb 3+
                     );
                               (Te
                                                     );
                                                                (Gd 2+
                                                                              CI 2+
                                                                                      );
Pd
     1+
             Co 2+
                               (Te
                                    2+
                                             Hf 3+
                                                                     2+
                     );
                                                                (Gd
                                                                              Sc 3+
                                                     );
                                                                                      );
Pd
             Ru 2+
     1+
                     );
                               (Te
                                    3+
                                             Ar 3+
                                                     );
                                                                (Gd 2+
                                                                              Eu 3+
                                                                                      ):
Pd
     1+
             In 2+
                               (Te
                                    3+
                                             La 4+
                                                                (Gd 2+
                     );
                                                                              Yb 3+
                                                     );
                               (Te
Pd
    1+
             Sb 2+
                     );
                                    3+
                                             Yb 4+
                                                                (Tb
                                                                     2+
                                                                              B 2+
                                                     );
                                                                                      );
Pd
             Bi 2+
                                             Bi 5+
                                                                              S 2+
    1+
                               (Te
                                    4+
                                                                     2+
                     );
                                                     );
                                                                (Tb
                                                                                      );
             Cu 2+
                                             Al 2+
Ag
    1+
                                    1+
                                                                     2+
                                                                              Br 2+
                     );
                               (1
                                                     );
                                                                (Tb
                                                                                      );
             As 2+
Αg
                     );
                               (1
                                    1+
                                             Si 2+
                                                     );
                                                                (Tb
                                                                     2+
                                                                              Xe 2+
                                                                                      );
    1+
             Ag 2+
                                             Fe 2+
                                                                     2+
                                                                             'Sm 3+
Αg
                     );
                               (1
                                    1+
                                                     );
                                                                (Tb
                                                                                      );
             Cs 2+
    1+
                               (1
                                    1+
                                             Co 2+
                                                     );
                                                                     2+
                                                                (Tb
                                                                              Tb 3+
```

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```
Ag
             Hg 2+
                                            Ge 2+
                                                    );
                                                               (Tb
                                                                    2+
                                                                            Dv 3+
Cd
    1+
             Zn 2+
                     );
                              (I
                                    1+
                                            Ru 2+
                                                    );
                                                               (Tb
                                                                    2+
                                                                            Ho 3+
                                                                                    );
Cd
    1+
             Ga 2+
                                    1+
                                            In 2+
                                                               (Tb
                                                                    2+
                                                                             Er 3+
                     );
                                                    );
                                                                                     );
Cd
             Cd 2+
    1+
                              (1
                                    1+
                                            Bi 2+
                                                               (Dy
                                                                    2+
                                                                             CI 2+
                     );
                                                    );
                                                                                     );
Cd
             TI 2+
    1+
                              (Xe
                                  1+
                                            Al 2+
                                                               (Dy
                                                                    2+
                                                                             K 2+
                     );
                                                    );
                                                                                    );
In
     1+
             Sc 2+
                     );
                              (Xe
                                    1+
                                            Co 2+
                                                    );
                                                               (Dy
                                                                    2+
                                                                             Zr 3+
                                                                                    );
In
     1+
             Y 2+
                     );
                              (Xe
                                   1+
                                            Ni 2+
                                                                    2+
                                                                            Eu 3+
                                                    );
                                                               (Dy
                                                                                    );
In
    1+
             Yb 2+
                              (Xe
                                    1+
                                            Rh 2+
                                                                    2+
                                                                            Yb 3+
                     );
                                                    );
                                                               (Dy
                                                                                    );
             Lu 2+
                                    1+
                                            Cd 2+
In
     1+
                              (Xe
                                                               (Ho
                                                                    2+
                                                                            Sc 3+
                     );
                                                    );
                                                                                    ):
In
    2+
             Sr 3+
                     );
                              (Xe
                                   1+
                                            Sb 2+
                                                    );
                                                               (Ho 2+
                                                                            Yb 3+
                                                                                    );
             Cd 3+
In
    2+
                     );
                              (La
                                   2+
                                            Ti 3+
                                                    );
                                                               (Ho 2+
                                                                             Hf 3+
                                                                                    );
Sn
    1+
             Ca 2+
                                   2+
                                            Sb 3+
                                                                    2+
                              (La
                                                               (Er
                                                                            Sc 3+
                     );
                                                    );
                                                                                    );
             Sr 2+
                                   2+,
                                            Ag 2+
                                                                    2+
                                                                            Yb 3+
Sn
    1+
                     );
                              (Ce
                                                    );
                                                               (Er
                                                                                    );
Sn
    1+
             La 2+
                     ):
                              (Ce
                                   2+
                                             1 2+
                                                    ):
                                                               (Er
                                                                    2+
                                                                             Hf 3+
                                                                                    ):
Sn
    1+
             Sm 2+
                              (Ce 2+
                                            Cs 2+
                                                               (Tm 2+
                     );
                                                                             Kr 2+
                                                                                    );
                                                    );
Sn
    1+
             Eu 2+
                     );
                              (Ce
                                   2+
                                            Au 2+
                                                    );
                                                               (Tm
                                                                   2+
                                                                            Nb 3+
                                                                                    );
Sn
    1+
             Tb 2+
                              (Ce 2+
                                                               (Tm 2+
                                            Hg 2+
                                                                             Hf 3+
                     );
                                                    );
                                                                                    );
                              (Pr
                                             B 2+
Sn
    1+
             Dy 2+
                     );
                                    2+
                                                               (Yb 2+
                                                                             Ti 3+
                                                                                     );
                                                    );
             Ho 2+
                              (Pr
                                    2+
                                             Y 3+
Sn
    1+
                     );
                                                    );
                                                               (Lu
                                                                    2+
                                                                             Kr 2+
                                                                                     );
    2+
             Hf 3+
                              (Pb
                                   2+
                                            As 3+
Lu
                     );
                                                               (TI
                                                                    1+
                                                                            Mg 2+
                                                    );
                                                                                     );
Hf
    2+
             As 2+
                              (Pb
                                    2+
                                            In 3+
                                                               (TI
                                                                    1+
                                                                            Mn 2+
                     );
                                                    );
                                                                                    );
Hf
    2+
             Ag 2+
                              (Pb
                                    2+
                     );
                                            Te 3+
                                                    );
                                                               (TI
                                                                    1+
                                                                            Mo 2+
                                                                                     );
Hf
    2+
              1
                2+
                     );
                              (Pb
                                   2+
                                            Pb 3+
                                                               (TI
                                                                    1+
                                                                            Tc 2+
                                                    );
                                                                                     );
    2+
                              (Pb
Hf
             Cs 2+
                     );
                                    3+
                                            Br 4+
                                                               (TI
                                                                    1+
                                                                            Sn 2+
                                                    );
                                                                                     );
Hf
             Hg 2+
    2+
                     );
                              (Bi
                                    1+
                                            Ba 2+
                                                               (TI
                                                                    1+
                                                                            Pb 2+
                                                                                     );
                                                    );
Hg
             Al 2+
                              (Bi
                                    2+
                                            Ar 2+
                                                               (Pb
                                                                    1+
                                                                            Sc 2+
    1+
                     );
                                                    );
                                                                                    );
Hg
    1+
             Si 2+
                     );
                              (Bi
                                    2+
                                            Mo 3+
                                                               (Pb
                                                                   1+
                                                                             Y 2+
                                                    );
                                                                                    );
             Co 2+
Hg
    1+
                     );
                              (Bi
                                    3+
                                            Se 4+
                                                               (Pb
                                                                   1+
                                                                             Lu 2+
                                                    );
                                                                                    );
                                                                                        and
             Ni 2+
Hg
                              (Bi
                                    3+
                                                                    2+
    1+
                     );
                                            Mo 4+
                                                    );
                                                               (Pb
                                                                            Fe 3+
    1+
             Rh 2+
                              (Bi
                                    3+
                                            Pb 4+
Hg
                     );
                                                    );
Hg
    1+
             Cd 2+
                     );
                              (Bi
                                    4+
                                             P 5+
                                                    );
             In 2+
                              (Bi
                                    4+
                                            Kr 5+
Hg
    1+
                                                    );
                     );
             Sb 2+
                              (Bi
                                    4+
                                            Zr 5+
Hg
    1+
                     );
                                                    );
```

28. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms, said catalyst comprising at least one free atom selected from the group consisting of

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Be, Cu, Zn, Pd, Te and Pt.

29. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of hydrogen atoms associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment;

a salt bridge connecting said anode and said cathode; and

a source of catalyst for forming hydrino atoms from said hydrogen atoms,

said catalyst comprising at least two species selected from the group consisting of:

```
1+
                                          Nd
                                                           Ti
                                                                2+
                                                                        Se
Li
     0+
             Мо
                 6+
                              P
                                          Tb
                                               4+
                       );
                                   1+
                                                    );
                                                           Τi
                                                                2+
                                                                             5+
                                                                                 );
Be
                  5+
                                          Na
                                               5+
                                  3+
                                                                        Cd
                                                                             3+
                                                                                  ):
В
     0+
             Sc
                 3+
                       );
                              S
                                  0+
                                          Sm
                                               3+
                                                    );
                                                           ٧
                                                                1+
                                                                             3+
                                                                                  );
В
                              S
     0+
             Zr
                  3+
                       );
                                  0+
                                          Dy
                                               3+
                                                           ٧
                                                                1+
                                                                       Hg
                                                    );
                                                                             3+
                                                                                  );
В
                              S
     0+
             Yb
                 3+
                                  0+
                                                           ٧
                                                                2+
                       );
                                          Ho
                                               3+
                                                    );
                                                                        Kr
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                 3+
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Ν
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             Bi
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Ν
     2+
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                 6+
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             Kr
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     0+
            Sm
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     0+
             Dν
                  4+
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                              CI
                                  4+
                                          Br
                                               7+
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0
     2+
             Na
                 4+
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     2+
            Mn
                 6+
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                             Ar
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0
     3+
             ΑI
                 5+
                                          TI
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F
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            Mg
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F
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                 8+
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             Ge
                 5+
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Ne
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Ne
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                 6+
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                                          Pb
                                               3+
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                                                           Ni
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Na
             Cr
                 4+
                      );
                              Κ
                                  1+
                                          Sc
                                               4+
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                                                                1+
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             Ge
                 4+
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                                  2+
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Sc
Na
                  5+
                       );
                              Ca
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                           (
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                                                             Ni
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Na
     1+
             Bi
                  6+
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                              Ca
                                   0+
                                           Dy
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Na
     3+
             Ne
                  6+
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                                                            Cu
                                                                  0+
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                       );
                           (
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             Ne
                  7+
                              Ca
                                            Er
Na
                                   0+
                                                 3+
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                                                            Cu
                                                                  0+
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                       );
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             Kr
Mg
     0+
                  3+
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Αl
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Si
             Zn
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     1+
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Si
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Si
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             Na
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Si
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Zn
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Ga
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                                           Co
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             Zn
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                  3+
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                                           Rb
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Se
     3+
             Ni
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             Nb
                  7+
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Se
     4+
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                                   5+
                                                8+
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Br
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                  4+
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                                            Si
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             F
                                           Co
Br
     2+
                  3+
                       );
                              Sn
                                   1+
                                                3+
                                                      );
                                                            Yb
                                                                  1+
                                                                          Ru
                                                                               3+
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Br
     2+
             Ga
                  4+
                       );
                              Sn
                                   1+
                                           Ge
                                                3+
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                                                            Yb
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Br
     3+
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                  4+
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             ΑI
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             Ν
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Br
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                                            Si
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                                                            Lu
                                                                  1+
                                                                          Ru
                                                                               3+
                                                                                    );
             Ti
Kr
     0+
                  3+
                       );
                              Sb
                                   1+
                                           Co
                                                3+
                                                                  1+
                           (
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                                                            Lu
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                                                                               3+
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Kr
             Sn
                  4+
                              Sb
                                           Ge
     1+
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                                   1+
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Kr
     1+
             Sb
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                              Sb
                                   2+
                                           As
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                                                                  1+
                                                                          Sc
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Kr
     2+
             Ne
                  3+
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                              Te
                                   1+
                                           Mn
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                                                            Hf
                                                                  1+
                                                      );
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                                                                               3+
                                                         (
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Kr
     2+
             Bi
                  5+
                                   1+
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                           (
                              Te
                                           As
                                                3+
                                                      );
                                                         (
                                                            Hg
                                                                  0+
                                                                          La
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     3+
             0
Kr
                  4+
                       );
                           (
                              Te
                                   1+
                                           Rh
                                                3+
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                                                            Pb
                                                                  1+
                                                                          Ni
                                                                               3+
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Αl
                                  Te 3+
  Kr
               4+
                   ); ( Te 1+ ,
                                          ); (
                                               Pb
                                  TI
  Kr 4+
           Ar
               6+
                   ); (
                        Te
                           1+
                                      3+
                                          ):
                                               Pb
                                                  2+
                                                             3+
 Rb
     0+
           Sc
               3+
                   );
                        Те
                            2+
                                  Cr
                                      4+
                                               Pb
                                                   2+
                                                         Ga
                                                                );
 Rb 0+
         , Zr
              3+
                        Te
                            2+
                                  Ge
                                                         Р
                   ); (
                                      4+
                                          ); (
                                               Bi
                                                   1+
                                                             3+
                                                                );
 Rb 0+
           Yb 3+
                        Te
                            2+
                                  As
                                     4+
                                               Bi
                                                         Sr
                   ); (
                                          );
                                                  1+
                                                                );
 Rb 1+
            Ν
                                  Zr
                                      5+
               3+
                   ); (
                        Тe
                            3+
                                          );
                                               La
                                                   1+
                                                                );
  Sr 1+
            С
               3+
                   ); (
                        Te 4+
                                  Ni 6+
                                          );
                                               La
                                                   1+
                                                         In
 Sr 1+
              3+
           Ar
                   ); (
                        Te 4+
                                  Cu 6+
                                          );
                                               La
                                                  1+
                                                         Sn
                                                                );
     1+
                                  Pr
  Sr
            Τi
               4+
                   );
                        Xe
                            0+
                                      3+
                                            (
                                               Ce 1+
                                                        Sm
                                                                ); and
                                          );
                                                            3+
  Sr 1+
           Te
              4+
                        Xe 0+
                                  Nd
                                      3+
                   );
                     (
                                          ); ( Ce 1+
(Sr
     3+
           Nb
                        La 1+
                                  Tc
              6+
                   ); (
```

30. (Previously Presented) A method of generating electricity in a fuel cell comprising a vessel having a first compartment containing a cathode, a second compartment containing an anode and a reductant, and a salt bridge between the first and second compartments, the method comprising:

supplying hydrino atoms to said first compartment;

reducing said hydrino atoms by supplying said hydrino atoms with electrons from said cathode to form increased binding energy hydride ions and producing a current between said cathode and anode.

- 31. (Previously Presented) A method according to claim 30, further comprising the step of forming said hydrino atoms from hydrogen atoms by use of a catalyst.
- 32. (Previously Presented) A method according to claim 31, wherein said catalyst comprises a salt of rubidium.
- 33. (Previously Presented) A method according to claim 32, wherein said salt of rubidium is selected from the group consisting of RbOH, Rb₂SO₄, Rb₂CO₃, and Rb₃PO₄.
- 34. (Previously Presented) A method according to claim 31, wherein said catalyst comprises a salt of potassium.

- 35. (Previously Presented) A method according to claim 34, wherein said salt of potassium is selected from the group consisting of KOH, K₂SO₄, K₂CO₃ and K₃PO₄.
- 36. (Previously Presented) A method according to claim 31, wherein said catalyst comprising a salt of titanium.
- 37. (Previously Presented) A method according to claim 36, wherein said salt of titanium is selected from the group consisting of TiF₂, TiCl₂, TiBr₂, Til₂ and TiS.
- 38. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least one selected from the group consisting of (Al²⁺), (Ar⁺), (Ti²⁺), (As²⁺), (Rb⁺), (Mo²⁺), (Ru²⁺), and (Te²⁺).
- 39. (Previously Presented) A method according to claim 31, wherein said catalyst being capable of providing a net enthalpy of reaction in the range of 26.8 to 28.5 eV.
- 40. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least one pair of ions selected from the group consisting of: (Sn^{4+}, Si^{4+}) , (Pr^{3+}, Ca^{2+}) , (Sr^{2+}, Cr^{2+}) , (Cr^{3+}, Tb^{3+}) , (Sb^{3+}, Co^{2+}) , (Bi^{3+}, Ni^{2+}) , (Pd^{2+}, In^{+}) , (La^{3+}, Dy^{3+}) , (La^{3+}, Ho^{3+}) , (K^+, K^+) , (V^{3+}, Pd^{2+}) , (Lu^{3+}, Zn^{2+}) , (As^{3+}, Ho^{3+}) , (Mo^{5+}, Sn^{4+}) , (Sb^{3+}, Cd^{2+}) , (Ag^{2+}, Ag^+) , (La^{3+}, Er^{3+}) , (V^{4+}, B^{3+}) , (Fe^{3+}, Ti^{3+}) , (Co^{2+}, Ti^{+}) , (Bi^{3+}, Zn^{2+}) , (As^{3+}, Dy^{3+}) , (Ho^{3+}, Mg^{2+}) , (K^+, Rb^+) , (Cr^{3+}, Pr^{3+}) , (Sr^{2+}, Fe^{2+}) , (Ni^{2+}, Cu^+) , (Li^+, Pb^{2+}) , (Sr^{2+}, Mo^{2+}) , (Y^{3+}, Zr^{4+}) , (Cd^{2+}, Ba^{2+}) , (Ho^{3+}, Pb^{2+}) , (Eu^{3+}, Mg^{2+}) , (Er^{3+}, Mg^{2+}) , (Bi^{4+}, Al^{3+}) , (Ca^{2+}, Sm^{3+}) , (V^{3+}, La^{3+}) , (Gd^{3+}, Cr^{2+}) , (Mn^{2+}, Ti^+) , (Yb^{3+}, Fe^{2+}) , (Ni^{2+}, Ag^+) , (Zn^{2+}, Yb^{2+}) , (Se^{4+}, Sn^{4+}) , (Sb^{3+}, Bi^{2+}) , and (Eu^{3+}, Pb^{2+}) .
- 41. (Previously Presented) A method according to claim 31, wherein said catalyst comprising oxygen in combination with at least one atom selected from the group

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consisting of Cu, As, Pd, Te, Cs and Pt.

- 42. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least one pair selected from the group consisting of: (B, Li⁺), (S, Li⁺), (Br, Li⁺), (Pm⁺, Li⁺), (Sm⁺, Li⁺), (Tb⁺, Li⁺), (Dy⁺, Li⁺), (Sb⁺, H⁺) and (Bi⁺, H⁺).
- 43. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least one pair selected from the group consisting of:

```
Nd 4+
( He
       0+
                Co 3+
                       );
                                 (0
                                       1+
                                                                  (Al
                                                                        2+
                                                                                 CI 5+
                                                                                        );
  He
       0+
                Ga 3+
                                 (0
                                                                  (Al
                        );
                                       1+
                                                Tb 4+
                                                        );
                                                                        4+
                                                                                Mn 8+
                                                                                        );
  Li
       0+
                Ni 3+
                        );
                                 (0
                                       2+
                                               Ne 3+
                                                        );
                                                                  (Si
                                                                        1+
                                                                                Mg 2+
                                                                                        );
                                 (0
  Li
       0+
                Xe 3+
                        );
                                       3+
                                                Sb 6+
                                                                  (Si
                                                                        1+
                                                                                 V 2+
                                                        );
                                                                                        );
                Hg 3+
                                 (0
                                       4+
                                                Fe 7+
                                                                  (Si
                                                                        1+
  Li
       0+
                        );
                                                        );
                                                                                Tc 2+
                                                                                        );
                                 (F
                                       0+
                                                Al 2+
                                                                  (Si
                                                                        1+
  Li
       1+
                Na 4+
                        );
                                                        );
                                                                                Sn 2+
                                                                                        );
  Li
       1+
                Υ
                   6+
                        );
                                 (F
                                       0+
                                                Si 2+
                                                        );
                                                                  (Si
                                                                        1+
                                                                                Hf 2+
                                                                                        );
       1+
                Bi 6+
                                 (F
                                       0+
                                                Fe 2+
                                                                  (Si
                                                                        1+
                                                                                Pb 2+
  Be
                                                        );
                        );
                                                                                         );
                                 (F
                                               Co 2+
                                                                        2+
  Be
       2+
                ΑI
                   6+
                        );
                                       0+
                                                        );
                                                                  (Si
                                                                                Co 3+
                                                                                        );
                                 (F
                C 2+
                                               Ru 2+
                                                                        2+
  В
       1+
                        ):
                                       0+
                                                        );
                                                                  (Si
                                                                                Ga 3+
                                                                                        );
  В
       1+
                K 2+
                                 (F
                                       0+
                                                In 2+
                                                                  (Si
                                                                        2+
                                                                                Ge 3+
                                                                                        );
                        );
                                                        );
  В
       1+
                Ho 3+
                                 (F
                                       0+
                                                Sb 2+
                                                                  (Si
                                                                        2+
                                                                                 TI 3+
                        );
                                                        );
                                                                                        );
                                 (F
  В
                                       0+
                                                Bi 2+
                                                                        3+
       1+
                Er 3+
                                                                  (Si
                                                                                 Ni 6+
                        );
                                                        );
                                                                                         );
  В
                                 (F
       1+
               Tm 3+
                                       1+
                                                Sb 4+
                                                                  (Si
                                                                        3+
                                                                                Rb 7+
                        );
                                                        );
                                                                                         );
                                 (F
  В
       1+
                Lu 3+
                        );
                                       3+
                                                Fe 6+
                                                        );
                                                                  (Si
                                                                        4+
                                                                                 AI 6+
                                                                                         );
  C
                Ν
                   2+
                                 (Ne 0+
                                               Sm 3+ ');
                                                                  (P
       1+
                        );
                                                                        1+
                                                                                Mg 2+
                                                                                        );
  C
       1+
                V
                   3+
                                 (Ne
                                      0+
                                                Dy 3+
                                                                  (P
                                                                        1+
                                                                                Tc 2+
                        );
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  С
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       1+
                Tc 3+
                                               Ho 3+
                                                                        1+
                        );
                                 (Ne
                                       0+
                                                                                Sn 2+
                                                        );
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  С
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       1+
                Ru 3+
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                                      0+
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                                                                                Hf 2+
                                                                                        );
  C
                Sn 3+
                                                                  (P
                                                                        1+
       1+
                        );
                                 (Ne
                                      0+
                                                Lu 3+
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  С
       2+
                Mn 4+
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                                                                        2+
                        );
                                 (Ne
                                       1+
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                                                                  (P
  С
       2+
                Co 4+
                                 (Ne
                                       1+
                                                K 3+
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  Ν
                Sr 2+
                                                V 4+
                                                                        2+
       0+
                        );
                                 (Ne
                                      1+
                                                        );
                                                                                Xe 3+
                                                                                        );
  Ν
       0+
                La 2+
                        );
                                 (Ne 2+
                                                0 4+
                                                        );
                                                                  (P
                                                                        3+
                                                                                Nb 5+
                                                                                        );
                                                                  (P
                Ce 2+
                                      0+
                                                Al 2+
                                                                        5+
  Ν
       0+
                        );
                                 (Na
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                                                                                 C 5+
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  Ν
                Pr 2+
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                                                                        1+
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       0+
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                                 (Na
                                      0+
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  Ν
       0+
                Nd 2+
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                                      0+
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  Ν
       0+
               Pm 2+
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  Ν
               Sm 2+
                                      0+
                                               Ru 2+
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  Ν
                Eu 2+
       0+
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                                      0+
                                                In 2+
                                                                  (S
                                                                        1+
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                                                                  (S
  Ν
       1+
                0 2+
                        );
                                 (Na 0+
                                               Sb 2+
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  Ν
       1+
                Si 3+
                                       0+
                                                Bi 2+
                                                                  (S
                                                                        2+
                        );
                                 (Na
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                                                                                Cd 3+
                                                                                        );
                P 3+
  Ν
       1+
                        );
                                 (Na
                                      2+
                                                Ti 5+
                                                        );
                                                                  (S
                                                                        3+
                                                                                Cu 4+
                                                                                        );
               Mn 3+
                                                                  (S
  Ν
       1+
                        );
                                 (Na
                                      2+
                                                Kr 6+
                                                        );
                                                                        3+
                                                                                Rb 4+
                                                                                        ):
  Ν
       1+
                Rh 3+
                                 (Na 3+
                                                Y 7+
                                                                  (S
                        );
                                                       );
                                                                        4+
                                                                                 0 4+
                                                                                        );
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/ NI O:	E 21 \	/8.4 m. 4 l	DF 2+ \	(0) 4)	C 2: \.
(N 2+ ,	F 3+);	(Mg 1+ ,	Rb 3+);	(Cl 1+ ,	C 2+);
(N 3+ ,	Br 6+);	(Mg 1+ ,	Eu 4+);	(Cl 1+ ,	K 2+);
(O 0+,	Ti 2+);	(Mg 3+ ,	Ne 5+);	(Cl 1+ ,	Zr 3+);
(0 0+ ,	V 2+);	(Mg 6+ ,	Cl 8+);	(Cl 1+ ,	Eu 3+);
(O O+ ,	Nb 2+);	(Al 1+ ,	Sc 2+);	(Cl 1+ ,	Tm 3+);
•	•	•	• •	,	
(O O+ ,	Hf 2+);	(Al 1+ ,	Zr 2+);	(Cl 2+ ,	Te 4+);
(0 1+ ,	Ne 2+);	(Al 1+ ,	Lu 2+);	(Cl 2+ ,	Sm 4+);
(0 1+ ,	Ca 3+);	(Al 2+ ,	S 5+);	(Cl 2+ ,	Gd 4+);
(Cl 2+ ,	Ho 4+);	(Sc 4+ ,	N 5+);	(Mn 4+ ,	Ge 5+);
(Cl 2+ ,	Er 4+);	(Ti 2+ ,	Ar 2+);	(Fe 1+ ,	Sc 2+);
(Cl 3+ ,	, .	•	• • • • • • • • • • • • • • • • • • • •	(Fe 1+	•
•	,.		• •	•	• • • • • • • • • • • • • • • • • • • •
(Cl 5+ ,	Ni 6+);	(Ti 4+ ,	O 5+);	(Fe 1+ ,	Yb 2+);
(CI 5+ ,	Cu 6+);	(Ti 4+ ,	Zn 6+);	(Fe 1+ ,	Lu 2+);
(CI 5+ ,	Rb 7+);	(Ti 4+ ,	As 6+);	(Fe 2+ ,	S 3+);
(Ar 0+ ,	Ba 2+);	(V 1+ ,	Sr 2+);	(Fe 2+ ,	Cu 3+);
(Ar 0+ ,	Ce 2+);	(V 1+ ,	La 2+);	(Fe 2+ ,	Zn 3+);
(Ar 0+ ,	•	•	•	(Fe 2+ ,	
•	•	•	• •		
(Ar 0+ ,	Nd 2+);	(V 1+ ,	Pr 2+ ·);	(Fe 2+ ,	Zr 4+);
(Ar 0+ ,	Ra 2+);	(V 1+ ,	Nd 2+);	(Fe 2+ ,	Ce 4+);
(Ar 1+ ,	Ti 3+);	(V 1+ ,	Pm 2+);	(Fe 5+ ,	Sr 7+);
(Ar 2+ ,	C 3+);	(V 1+ ,	Sm 2+);	(Co 1+ ,	Mg 2+);
(Ar 3+	K 4+);	(V 1+ ,	Eu 2+);	(Co 1+ ,	Cr 2+);
(Ar 3+ ,		(V 2+	•	(Co 1+	
•	• • • • • • • • • • • • • • • • • • • •	•	• •	•	
(Ar 3+	Mo 5+);	(V 3+ ,	Mn 4+);	(Co 1+ ,	Mo 2+);
(Ar 4+ ,	Y 5+);	(V 3+ ,	Co 4+);	(Co 1+ ,	Tc 2+);
(K 1+,	Si 3+);	(V 4+ ,	Ar 6+);	(Co 1+ ,	Pb 2+);
(K 1+,	P 3+);	(V 4+ ,	Sc 5+);	(Co 2+ ,	Cu 3+);
(K 1+ ,	Mn 3+);	(V 5+ ,	Mg 5+);	(Co 2+ ,	Zn 3+);
(K 1+	Ge 3+);	(V 6+ ,	Sc 8+);	(Co 2+ ,	Br 3+);
•	•		• •	•	•
(K 1+,	Rh 3+);	(V 6+ ,	Br 8+);	(Co 2+ ,	Zr 4+);
(K 1+,	TI 3+);	(Cr 1+ ,	Sc 2+);	(Co 2+ ,	Ag 3+);
(K 2+,	He 2+);	(Cr 1+ ,	Ti 2+);	(Co 2+ ,	Ce 4+);
(K 2+,	Si 4+);	(Cr 1+ ,	Zr 2+);	(Co 2+ ,	Hf 4+);
(K 2+,	As 4+);	(Cr 1+ ,	Lu 2+);	(Co 4+ ,	Nb 6+);
(K 3+	P 5+);	(Cr 2+ ,	F 2+);	(Co 5+ ,	Sc 6+);
(K 3+,	, ,	(Cr 2+ ,	, ,	(Ni 1+ ,	
,	• • • • • • • • • • • • • • • • • • • •	•	• •	•	• • • • • • • • • • • • • • • • • • • •
(K 4+ ,	Rb 6+);	(Cr 2+ ,	Se 3+);	(Ni 1+	Ni 2+);
(K 5+,	Mg 4+);	(Cr 2+ ,	Pd 3+);	(Ni 1+ ,	Rh 2+);
(K 5+,	Kr 7+);	(Cr 2+ ,	1 3+);	(Ni 1+ ,	Cd 2+);
(K 6+,	Y 8+);	(Cr 2+ ,	Hg 3+);	(Ni 1+ ,	Sb 2+);
(Ca 1+ ,	C 2+);	(Cr 3+ ,	O 3+);	(Ni 2+ ,	Ne 2+);
(Ca 1+ ,	Sm 3+);	(Cr 3+ ,	Ni 4+);	(Ni 2+ ,	Ca 3+);
(Ca 1+ ,	•	(Cr 4+ ,	• •		• • • • • • • • • • • • • • • • • • • •
•	•	•	• •	(Ni 2+ ,	Nd 4+);
(Ca 1+ ,	Ho 3+);	(Cr 5+ ,	Ne 5+);	(Ni 2+ ,	Tb 4+);
(Ca 1+ ,	Er 3+);	(Cr 5+ ,	Fe 7+);	(Ni 4+ ,	Rb 6+);
(Ca 1+ ,	Tm 3+);	(Mn 1+ ,	V 2+);	(Ni 6+ ,	Ar 8+);
(Ca 1+ ,	Lu 3+);	(Mn 1+ ,	Nb 2+);	(Cu 1+ ,	Ag 2+);
(Ca 2+ ,	O 3+);	(Mn 1+ ,	Sn 2+);	(Cu 1+ ,	1 2+);
(Ca 2+ ,	Ni 4+);	(Mn 1+ ,	Hf 2+);	(Cu 1+ ,	Cs 2+);
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Mn 5+
                               (Mn 2+
                                             Cu 3+
                                                                 (Cu 1+
                                                                               Au 2+
Ca
    3+
                     );
                                                      );
     3+
             Rb 5+
                               (Mn 2+
                                              Zn 3+
                                                                 (Cu
                                                                     1+
                                                                               Hg 2+
Ca
                     );
                                                      );
Ca
    4+
             CI 6+
                      );
                               (Mn 2+
                                              Br 3+
                                                      );
                                                                 (Cu
                                                                      2+
                                                                              Sm 4+
                                                                                       );
Ca
    4+
             Ar 6+
                     );
                               (Mn 2+
                                              Zr 4+
                                                                 (Cu 2+
                                                                               Gd 4+
                                                      );
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             Sc 5+
                               (Mn 2+
Ca
     4+
                     );
                                              Ce 4+
                                                                 (Cu 2+
                                                                               Dy 4+
                                                      );
              Y 7+
                                              Hf 4+
                                                                               K 4+
Ca
    5+
                               (Mn 2+
                                                                 (Cu 3+
                     );
                                                      );
                               (Mn 3+
Sc
    2+
              Ti
                4+
                      );
                                             Mg 3+
                                                      );
                                                                 (Cu
                                                                      3+
                                                                               Br 5+
                                                                                       );
Sc
     2+
              Bi 4+
                               (Mn 3+
                                              Te 5+
                                                                      3+
                                                                               Mo 5+
                                                      );
                                                                 (Cu
Cu
    4+
             Rb 6+
                                             Fe 2+
                                                                 (Sr
                                                                               Ga 2+
                      );
                               (Se
                                     1+
                                                                      1+
                                                                                       );
                                                      );
                                             Co 2+
Cu
     5+
             Mn 7+
                               (Se
                                    1+
                                                                 (Sr
                                                                      1+
                                                                               Te 2+
                      );
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                 2+
Zn
     1+
              Ρ
                               (Se
                                    1+
                                             Ge 2+
                                                                 (Sr
                                                                      1+
                                                                               Pt 2+
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                                                                               TI 2+
Zn
     1+
              1
                 2+
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                               (Se
                                    1+
                                              Ru 2+
                                                                 (Sr
                                                                      1+
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                 3+
                                              In 2+
                                                                      2+
                                                                               C 3+
Zn
     1+
             La
                      );
                               (Se
                                    1+
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                 2+
                                              Bi 2+
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Zn
     1+
             Αu
                               (Se
                                    1+
                                                                 (Sr
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Zn
     1+
             Hg 2+
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                               (Se
                                     2+
                                              Te 3+
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                                                                      3+
                                                                               Ar 4+
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Zn
     2+
              Ti 4+
                                              Br 4+
                                                                      3+
                                                                               Sr 4+
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                               (Se
                                     3+
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             Sn 4+
                                              Y 7+
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    2+
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                               (Se
                                    5+
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                                                                 (Sr
                                                                      3+
                                                                               Sb 5+
                                                                                       );
                                              P 2+
Zn
     2+
             Bi 4+
                                                                      3+
                                                                               Bi 5+
                               (Br
                                     1+
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                      );
             As 5+
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                                                 2+
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Zn
     3+
                      );
                                     1+
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                                                                      4+
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Zn
     4+
             Sr 6+
                               (Br
                                     1+
                                              La 3+
                                                                 (Sr
                                                                      4+
                                                                               Cu 5+
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     5+
                                              Au 2+
                                                                      2+
Zn
             Mn 7+
                               (Br
                                     1+
                                                      );
                                                                 (Y
                                                                               Sr 3+
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Zn
     6+
             Mo 8+
                               (Br
                                     3+
                                             He 2+
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                                                                      2+
                                                                               Cd 3+
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Ga
             Cr 2+
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                                              Si 4+
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                                                                      3+
                                                                               Se 5+
     1+
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Ga
     1+
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Ga
    1+
             Fe 2+
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                                     4+
                                              S 5+
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             Ge 2+
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Ga
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Ga
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             Mo 2+
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Ga
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             Rb 3+
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                                              S 2+
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Ga
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             Tm 4+
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                                              Nd 3+
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                                                                               La 3+
Ge
    1+
             Mg 2+
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             Mn 2+
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                                             Pm 3+
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Ge
                      );
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Ge
    1+
             Tc 2+
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                                     1+
                                              Tb 3+
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Ge
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             Se 3+
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Ge
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                                                                               Lu 3+
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              V 5+
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Ge
    3+
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                                              Sr 6+
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             Se 5+
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Ge
     3+
             Pb 5+
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                               (Rb
                                    1+
                                              Nb 3+
                                                                 (Nb
                                                                     4+
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             Sc 2+
                                             Te 4+
As
     1+
                     );
                               (Rb 2+
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                                                                 (Mo
                                                                     1+
                                                                               Ba 2+
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              Y 2+
     1+
                               (Rb
                                    2+
                                             Sm 4+
                                                                               Pr 2+
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                                                                     1+
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            / Zr 2+
     1+
                                    2+
                                             Gd 4+
As
                     );
                               (Rb
                                                                     1+
                                                                               Nd 2+
                                                      );
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As
             Lu 2+
                               (Rb
                                    2+
                                              Dy 4+
                                                                               Ra 2+
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                                                                 (Mo 1+
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As
    2+
             Co 3+
                     );
                               (Rb
                                    2+
                                             Ho 4+
                                                                (Mo 2+
                                                                              Ru 3+
                                                     );
             Ga 3+
As
     2+
                               (Rb
                                    2+
                                             Er 4+
                                                                (Mo 2+
                                                                              Sn 3+
                     );
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                                                                (Mo 3+
     2+
             Ge 3+
                               (Rb
                                    3+
                                             Mg 3+
                                                                              Cr 4+
As
                     );
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             TI 3+
As
     2+
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                               (Rb
                                    3+
                                             Te 5+
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                                                                              Ge 4+
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As
     3+
             Fe 4+
                               (Rb 5+
                                             Rb 6+
                                                                (Mo
                                                                     4+
                                                                              Bi 5+
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     4+
             Sb 6+
                               (Rb 6+
                                             Te 7+
                                                                              Mn 6+
As
                     );
                                                                (Mo 5+
                                                                                      );
                                                     );
             Al 2+
                                                                (Mo
Se
     1+
                               (Sr
                                    1+
                                             Be 2+
                                                                     6+
                                                                              0 6+
                      );
                                                     );
                                                                                      );
Se
     1+
             Si 2+
                     );
                               (Sr
                                    1+
                                             Zn 2+
                                                     );
                                                                (Mo
                                                                     6+
                                                                              Cr 7+
                                                                                      );
Tc
     1+
             Sr 2+
                               (Sn
                                    1+
                                             Er 2+
                                                                (Pr
                                                                     2+
                                                                              Xe 2+
                     );
                                                     );
                                                                                      );
Tc
             La 2+
                                    2+
                                             N 2+
                                                                     2+
                                                                              Pr 3+
     1+
                     );
                               (Sn
                                                                (Pr
                                                     );
                                                                                      );
             Ce 2+
                                             Ar 2+
                                                                     2+
Tc
     1+
                     );
                               (Sn
                                    2+
                                                                (Pr
                                                                              Nd 3+
                                                     );
                                                                                      );
Tc
     1+
             Pm 2+
                     );
                               (Sn 2+
                                             V 3+
                                                                (Pr
                                                                     2+
                                                                              Pm 3+
                                                     );
                                                                                      );
Tc
     1+
             Sm 2+
                               (Sn
                                    2+
                                             Mo 3+
                                                                (Pr
                                                                     2+
                                                                              Gd 3+
                     );
                                                     );
                                                                                      );
Tc
     1+
             Eu 2+
                               (Sn
                                    3+
                                             Mn 4+
                                                                (Pr
                                                                     2+
                                                                              Tb 3+
                     );
                                                     );
                                                                                      );
             Tb 2+
                                             Fe 4+
                                                                     2+
                                                                              Sm 3+
Tc
     1+
                     );
                               (Sn
                                    3+
                                                                (Nd
                                                     );
Тс
     1+
             Dy 2+
                     );
                               (Sn
                                    3+
                                             Co 4+
                                                     );
                                                                (Nd
                                                                     2+
                                                                              Dy 3+
                                                                                      );
Ru
             Ca 2+
                                    2+
                                             Ti 3+
                                                                (Nd 2+
                                                                              Ho 3+
     1+
                      );
                               (Sb
                                                     );
                                                                                      );
Ru
     1+
             Eu 2+
                               (Sb 2+
                                             Sb 3+
                                                                (Nd 2+
                                                                              Er 3+
                     );
                                                     );
                                                                                      );
Ru
     1+
             Tb 2+
                               (Sb 2+
                                             Bi 3+
                                                                (Nd 2+
                                                                              Lu 3+
                     );
                                                     );
                                                                                      );
                                              C 3+
                                                                              C 2+
Ru
     1+
             Dy 2+
                      );
                               (Sb
                                    3+
                                                     );
                                                                (Pm 2+
                                                                                      );
Ru
     1+
             Ho 2+
                               (Te
                                    1+
                                             Sc 2+
                                                                (Pm 2+
                                                                              K 2+
                     );
                                                                                      );
                                                     );
Ru
             Er 2+
                                              Y 2+
     1+
                     );
                               (Te
                                    1+
                                                     );
                                                                (Pm 2+
                                                                              Zr 3+
                                                                                      );
              V 2+
                                    1+
                                             Gd 2+
                                                                (Pm 2+
Rh
     1+
                     );
                               (Te
                                                                              Eu 3+
                                                                                      );
                                                     );
             Nb 2+
                                             Tm 2+
Rh
     1+
                     );
                               (Te
                                    1+
                                                     );
                                                                (Pm 2+
                                                                              Tm 3+
                                                                                      );
             Sn 2+
                                             Yb 2+
Rh
     1+
                               (Te
                                    1+
                                                                (Sm 2+
                                                                              Cl 2+
                      );
                                                     );
                                                                                      );
             Hf 2+
                               (Te
                                             Lu 2+
                                    1+
                                                                (Sm 2+
                                                                              Sc 3+
Rh
     1+
                      );
                                                     );
                                                                                      );
Pd
     1+
             ΑI
                 2+
                     );
                               (Te
                                    2+
                                             Sc 3+
                                                                (Sm 2+
                                                                              Yb 3+
                                                                                      );
                                                     );
             Si 2+
Pd
                               (Te
                                    2+
                                             Kr 2+
                                                     );
                                                                (Eu
                                                                     2+
                                                                              Nb 3+
                                                                                      );
Pd
             Fe 2+
                                    2+
                                             Yb 3+
                                                                (Gd 2+
                                                                              CI 2+
     1+
                     );
                               (Te
                                                     );
                                                                                      );
             Co 2+
Pd
     1+
                               (Te
                                    2+
                                             Hf 3+
                                                                (Gd 2+
                                                                              Sc 3+
                     );
                                                     );
                                                                                      );
Pd
             Ru 2+
     1+
                     );
                               (Te
                                    3+
                                             Ar 3+
                                                     );
                                                                (Gd 2+
                                                                              Eu 3+
                                                                                      );
Pd
     1+
             In 2+
                     );
                               (Te
                                    3+
                                             La 4+
                                                                (Gd 2+
                                                                              Yb 3+
                                                     );
                                                                                      );
             Sb 2+
                                                                     2+
Pd
     1+
                               (Te
                                    3+
                                             Yb 4+
                                                                (Tb
                                                                              B 2+
                      );
                                                     );
                                                                                      );
             Bi 2+
                                             Bi 5+
Pd
     1+
                               (Te
                                    4+
                                                                     2+
                                                                              S 2+
                     );
                                                                (Tb
                                                     );
                                                                                      );
             Cu 2+
                                             Al 2+
                                                                     2+
Αg
     1+
                     );
                               (1
                                     1+
                                                     );
                                                                (Tb
                                                                              Br 2+
                                                                                      );
Ag
     1+
             As 2+
                     );
                               (1
                                     1+
                                             Si 2+
                                                     );
                                                                (Tb
                                                                     2+
                                                                              Xe 2+
                                                                                      );
Ag
     1+
             Ag 2+
                                     1+
                                             Fe 2+
                                                                     2+
                                                                              Sm 3+
                     );
                               (1
                                                     );
                                                                (Tb
                                                                                      );
             Cs 2+
Ag
     1+
                               (1
                                     1+
                                             Co 2+
                                                                (Tb
                                                                    2+
                                                                              Tb 3+
                     );
                                                     );
                                                                                      );
             Hg 2+
Ag
                                             Ge 2+
     1+
                               (1
                                     1+
                                                                     2+
                      );
                                                     );
                                                                (Tb
                                                                              Dy 3+
                                                                                      );
Cd
     1+
             Zn 2+
                     );
                               (1
                                     1+
                                             Ru 2+
                                                     );
                                                                (Tb
                                                                     2+
                                                                              Ho 3+
                                                                                      );
Cd
     1+
             Ga 2+
                                     1+
                                             In 2+
                                                                     2+
                     );
                               (1
                                                     );
                                                                (Tb
                                                                              Er 3+
                                                                                      );
             Cd 2+
Cd
     1+
                                     1+
                                             Bi 2+
                                                                     2+
                                                                              CI 2+
                     );
                               (1
                                                     );
                                                                (Dy
                                                                                      );
Cd
             TI 2+
                                             Al 2+
     1+
                     );
                               (Xe
                                    1+
                                                     );
                                                                (Dy
                                                                     2+
                                                                              K 2+
                                                                                      );
             Sc 2+.
                                                                              Zr 3+
In
     1+
                     );
                               (Xe
                                    1+
                                             Co 2+
                                                     );
                                                                (Dy
                                                                     2+
In
     1+
             Y 2+
                               (Xe
                                             Ni 2+
                                                                     2+
                     );
                                    1+
                                                     );
                                                                (Dy
                                                                              Eu 3+
                                                                                      );
In
     1+
             Yb 2+
                               (Xe
                                    1+
                                             Rh 2+
                                                                     2+
                                                                              Yb 3+
                     );
                                                     );
                                                                (Dy
                                                                                      );
             Lu 2+
In
     1+
                     );
                               (Xe
                                    1+
                                             Cd 2+
                                                                     2+
                                                                              Sc 3+
                                                     );
                                                                (Ho
                                                                                      );
     2+
             Sr 3+
In
                     );
                               (Xe
                                    1+
                                             Sb 2+
                                                     );
                                                                (Ho
                                                                     2+
                                                                              Yb 3+
                                                                                      );
In
     2+
             Cd 3+
                     );
                                    2+
                                             Ti 3+
                                                                     2+
                                                                              Hf 3+
                               (La
                                                     );
                                                                (Ho
                                                                                      );
```

```
Sb 3+
                                                                            Sc 3+
             Ca 2+
                               (La 2+
                                                               (Er
                                                                    2+
Sn
                     ):
                                                    ):
                               (Ce 2+
              Sr 2+
                                            Ag 2+
                                                                    2+
                                                                            Yb 3+
Sn
     1+
                     );
                                                    );
                                                               (Er
                                                                                    );
Sn
     1+
             La 2+
                     );
                               (Ce
                                    2+
                                             1 2+
                                                    );
                                                               (Er
                                                                    2+
                                                                            Hf 3+
                                                                                    );
     1+
             Sm 2+
                               (Ce 2+
                                            Cs 2+
                                                               (Tm 2+
                                                                             Kr 2+
Sn
                     );
                                                    );
                                                                                    );
Sn
     1+
             Eu 2+
                               (Ce 2+
                                            Au 2+
                                                               (Tm 2+
                                                                            Nb 3+
                     );
                                                    );
                                                                                    ):
                                                               (Tm 2+
             Tb 2+
                               (Ce
                                    2+
                                            Hg 2+
                                                                            Hf 3+
Sn
     1+
                     );
                                                    );
                                                                                    );
Sn
     1+
             Dy 2+
                     );
                               (Pr
                                    2+
                                             B 2+
                                                    );
                                                               (Yb
                                                                    2+
                                                                             Ti 3+
                                                                                    );
                                    2+
                                             Y 3+
Sn
     1+
             Ho 2+
                     );
                               (Pr
                                                    );
                                                               (Lu
                                                                    2+
                                                                             Kr 2+
                                                                                    ):
              Hf 3+
                               (Pb
                                    2+
                                            As 3+
Lu
     2+
                                                    );
                                                               (TI
                                                                    1+
                                                                            Mg 2+
                     );
                                                                                    );
Hf
                               (Pb
                                    2+
                                             In 3+
                                                               (TI
     2+
             As 2+
                     );
                                                    );
                                                                    1+
                                                                            Mn 2+
                                                                                    );
                               (Pb
                                   2+
                                            Te 3+
                                                                    1+
Hf
     2+
             Ag 2+
                     );
                                                    );
                                                               (TI
                                                                            Mo 2+
                                                                                    );
                                                                            Tc 2+
Hf
     2+
              1 2+
                               (Pb 2+
                                            Pb 3+
                                                               (TI
                                                                    1+
                     );
                                                    );
                                                                                    );
Hf
             Cs 2+
                               (Pb
                                   3+
                                             Br 4+
                                                               (TI
                                                                    1+
                                                                            Sn 2+
     2+
                     );
                                                    );
                                                                                    );
                                                                            Pb 2+
Hf
     2+
             Hg 2+
                     ):
                               (Bi
                                    1+
                                             Ba 2+
                                                    );
                                                               (TI
                                                                    1+
                                                                                    );
              Al 2+
                     );
                               (Bi
                                    2+
                                             Ar 2+
                                                               (Pb
                                                                    1+
                                                                            Sc 2+
                                                                                    );
Hg
     1+
                                                    );
                 2+
                                                               (Pb
                                                                    1+
                                                                             Y 2+
Hg
     1+
              Si
                     );
                               (Bi
                                    2+
                                            Mo 3+
                                                     );
                                                                                    );
             Co 2+
                               (Bi
                                    3+
                                                               (Pb
                                                                   1+
                                                                            Lu 2+
Hg
     1+
                                             Se 4+
                                                     );
                                                                                    );
                                                                                        and
                     );
              Ni 2+
Hg
     1+
                     );
                               (Bi
                                    3+
                                            Mo 4+
                                                    );
                                                               (Pb 2+
                                                                            Fe 3+
                                    3+
                                            Pb 4+
Hg
     1+
             Rh 2+
                     );
                               (Bi
                                                     );
                                    4+
                                             P 5+
     1+
             Cd 2+
                               (Bi
Hg
                     );
                                                    );
                                    4+
                                             Kr 5+
     1+
              In 2+
                     );
                               (Bi
                                                    );
Hg
Hg 1+
             Sb 2+
                     );
                               (Bi
                                    4+
                                             Zr 5+
```

- 44. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least one free atom selected from the group consisting of Be, Cu, Zn, Pd, Te and Pt.
- 45. (Previously Presented) A method according to claim 31, wherein said catalyst comprising at least two species selected from the group consisting of:

```
Ρ
Li
     0+
            Ar
                 5+
                                  1+
                                         Nd
                                             4+
                                                          Ti
                                                              2+
                                                                           5+
                                                                               );
                                                   );
                                                                      As
Li
     0+
            Мо
                 6+
                                         Tb
                      );
                          (
                                 1+
                                                   );
                                                                      Se
                                                                           5+
                                                                               );
                                                                      Cd
Be
    0+
            Kr
                 5+
                      );
                         (
                             P
                                 3+
                                         Na
                                              5+
                                                   );
                                                          V
                                                              1+
                                                                          3+
                                                                               ):
В
            Sc
                 3+
                             S
                                                          V
     0+
                      );
                         (
                                 0+
                                         Sm
                                              3+
                                                   );
                                                              1+
                                                                      1
                                                                           3+
                                                                               );
                                                      (
В
     0+
            Zr
                 3+
                      );
                             S
                                 0+
                                         Dγ
                                              3+
                                                   );
                                                              1+
                                                                      Hq
                                                                           3+
                                                                               );
В
    0+
            Yb
                 3+
                             S
                                 0+
                                         Но
                                              3+
                                                          V
                                                              2+
                      );
                         (
                                                   );
                                                                      Kr
                                                                          4+
                                                                               );
C
                             S
    0+
            Te
                 3+
                                         Er
                                              3+
                                                          ٧
                                                              2+
                      );
                                 0+
                                                   );
                                                                      Nb
                                                                           5+
                                                                               );
С
                             S
     0+
            TI
                 3+
                      );
                                 0+
                                         Lu
                                              3+
                                                   );
                                                          ٧
                                                              4+
                                                                      Ni
                                                                          7+
                                                                               ):
                             S
Ν
    0+
            Ag
                 3+
                      );
                                 1+
                                         Nb
                                              4+
                                                   );
                                                          V
                                                              4+
                                                                      Kr
                                                                          8+
                                                                               ):
            Cd
                 3+
                             S
                                 1+
                                              4+
                                                         Cr
                                                              1+
Ν
    0+
                      );
                                         Но
                                                   );
                                                                      S
                                                                           3+
                                                                               );
                          (
                                                      (
Ν
     0+
            Hg
                 3+
                      );
                             S
                                 1+
                                         Er
                                              4+
                                                   );
                                                         Cr
                                                              1+
                                                                      Ca
                         (
                                                      (
                                                                               );
Ν
            Bi
                      );
                         (
                             S
                                 1+
                                                   );
                                                              3+
                 5+
                                         Tm
                                             4+
                                                      (
                                                         Cr
```

```
Br
                                            ₿i
N
     2+
                  6+
                               S
                                    2+
                                                 5+
                                                      );
                                                             Cr
                                                                  3+
                                                                          Zn
                                                                               5+
                       );
                                            Τi
                                                                          Cu
Ν
     2+
             Kr
                  6+
                               CI
                                    0+
                                                 3+
                                                             Cr
                                                                  5+
                       );
                                                      );
                                                                                     );
0
     0+
             CI
                   3+
                       );
                               CI
                                    1+
                                           Мо
                                                 4+
                                                      );
                                                          (
                                                             Mn
                                                                  1+
                                                                          Nd
                                                                                4+
                                                                                     );
0
     0+
             Kr
                  3+
                               CI
                                    1+
                                            Pb
                                                 4+
                                                             Mn
                                                                          Tb
                       );
                           (
                                                      );
                                                                  1+
                                                                                4+
                                                                                     );
                                            Sc
0
             Sm
                  4+
                               CI
                                                 5+
                                                             Mn
                                                                  2+
                                                                          Ca
                       );
                                                      );
                                                                                     );
0
                                            Br
     0+
             Dy
                   4+
                               CI
                                                 7+
                                                                          Nb
                       );
                                    4+
                                                      );
                                                             Mn
                                                                  3+
                                                                               6+
                                                                                     );
0
     2+
             Na
                  4+
                       );
                               Ar
                                    0+
                                           Mn
                                                 3+
                                                      );
                                                             Mn
                                                                  5+
                                                                          Ca
                                                                               8+
                                                                                     );
0
     2+
             CI
                  6+
                                           As
                                                 3+
                                                             Fe
                                                                  1+
                       );
                                                      );
                                                                          Nd
0
     2+
             Mn
                  6+
                                            Rh
                                                 3+
                                                             Fe
                                                                          Pm
                               Ar
                                    0+
                                                      );
                                                                  1+
                                                                               4+
                       );
                           (
                                                                                     );
                                            ΤI
0
     3+
             ΑI
                  5+
                               Ar
                                    0+
                                                 3+
                                                      );
                                                             Fe
                                                                  1+
                                                                          Tb
                       );
                                                                               4+
                                                                                     );
F
                                                             Fe
     0+
             Bi
                  4+
                               Ar
                                    1+
                                           Mn
                                                 4+
                                                      );
                                                                  3+
                                                                          Ne
                       );
                                                                               4+
F
                                                                          Мо
     1+
             Mn
                  5+
                       );
                               Ar
                                    1+
                                            In
                                                 4+
                                                      );
                                                             Fe
                                                                  5+
                                                                               8+
                                                                                     );
 F
     3+
             Mg
                  5+
                                           Mg
                       );
                               Ar
                                    5+
                                                 5+
                                                      );
                                                             Co
                                                                  1+
                                                                          Pm
                                                                               4+
                                                                                     );
F
     4+
             Ti
                  8+
                                            ΑI
                               K
                                    0+
                                                 3+
                                                      );
                                                             Co
                                                                  2+
                                                                           C
                       );
                                                                               4+
                                            Cr
                                                             Со
Ne
     1+
             Ge
                  5+
                       );
                               K
                                    0+
                                                 3+
                                                      );
                                                                  3+
                                                                          Mg
                                                                               4+
                                                                                     );
             ΑI
                  6+
                                            Pb
     4+
                               K
                                    0+
                                                 3+
                                                             Ni
                                                                  1+
Ne
                       );
                           (
                                                      );
                                                                          La
                                                                               4+
                                                                                     );
Na
     0+
             Cr
                  4+
                           (
                               Κ
                                    1+
                                            Sc
                                                 4+
                                                      );
                                                             Ni
                                                                  1+
                                                                          Yb
                       );
                                                                               4+
                                                                                     );
             Ge
                                    2+
                                            CI
Na
     0+
                  4+
                       );
                               K
                                                 5+
                                                      );
                                                             Ni
                                                                  1+
                                                                          Lu
                                                                               4+
                                                                                     );
             Sc
                                    0+
                                            Eu
Na
     1+
                  5+
                              Ca
                                                 3+
                                                      );
                                                             Ni
                                                                  2+
                                                                           Κ
                                                                                4+
                                                                                     );
                       );
             Bi
                  6+
                              Ca
                                    0+
                                            Dy
                                                 3+
                                                             Ni
                                                                  5+
Na
     1+
                       );
                                                      );
                                                                          Fe
                                                                               8+
                                                                                     );
     3+
Na
             Ne
                  6+
                       );
                              Ca
                                    0+
                                           Но
                                                 3+
                                                      );
                                                             Cu
                                                                  0+
                                                                          Ce
                                                                                3+
                                                                                     );
     4+
             Ne
                  7+
                              Ca
                                            Er
                                                             Cu
                                                                  0+
                                                                          Pr
Na
                                    0+
                                                 3+
                                                      );
                                                                                3+
                       );
                           (
                                                                                    );
Mg
     0+
             Kr
                  3+
                       );
                           (
                              Ca
                                    1+
                                           Mg
                                                 3+
                                                      );
                                                             Cu
                                                                  1+
                                                                          Ar
                                                                               3+
                                                                                     );
     2+
             ΑI
                  5+
                                    1+
                                           Fe
                                                                  1+
Mg
                              Ca
                                                 4+
                                                             Cu
                                                                           Ti
                       );
                                                      );
                                                                               4+
                                                                                     );
             Na
                  6+
Mg
     3+
                              Ca
                                    1+
                                           Co
                                                 4+
                                                             Cu
                                                                  1+
                                                                          Te
                                                                               4+
                       );
                                                      );
                                                                                     );
             Zr
ΑI
     1+
                  5+
                       );
                              Ca
                                    3+
                                           Co
                                                 6+
                                                      );
                                                             Cu
                                                                  2+
                                                                          Sn
                                                                               5+
                                                                                    );
ΑI
     3+
             Mg
                  6+
                                    3+
                                            Υ
                                                 6+
                                                             Zn
                                                                  0+
                                                                           Υ
                       );
                              Ca
                                                      );
                                                                                3+
                                                                                    );
ΑI
     3+
             Cr
                  8+
                              Sc
                                    1+
                                            C
                                                 3+
                                                             Zn
                                                                  0+
                                                                          Pm
                       );
                                                      );
                                                                               3+
                                                                                    );
Si
             Zn
                  3+
                              Sc
                                            Te
                                                             Zn
     1+
                       );
                                    1+
                                                 4+
                                                      );
                                                                  0+
                                                                          Gd
                           (
                                                                               3+
                                                                                     );
Si
             Ce
                               Ti
                                           Mn
                                                             Zn
     1+
                  4+
                       );
                           (
                                    1+
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Si
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Si
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Si
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     3+
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Ga
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As
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As
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     2+
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                                   2+
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As
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As
     2+
             Nb
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Se
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Se
            Nb
                                          Rb
                             Мо
                                  5+
                                               8+
                                                           Dy
            Eu
Br
     0+
                  3+
                             Αg
                                  0+
                                          La
                                               3+
                                                           Ho
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Br
     0+
            Tm
                  3+
                             Ag
                                  0+
                                          Ce
                                               3+
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Br
            Nb
                  4+
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                                               3+
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            Gd
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Br
                  4+
                             Sn
                                          Ga
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Br
             N
                  5+
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     0+
             Ti
                  3+
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            Sn
                 4+
                             Sb
Kr
     1+
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Kr
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            Sb
                 4+
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                 3+
Kr
            Ne
                             Te
                                  1+
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Kr
     2+
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Kr
     3+
                  4+
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            Ar
                 6+
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Kr
                       ):
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    0+
            Sc
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Rb
                 3+
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Rb
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             Zr
                  3+
                             Te
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                                          Ge
                                               4+
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     0+
            Yb
                 3+
                             Te
Rb
                       );
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Rb
             Ν
                  3+
                             Te
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                                          Zr
                                               5+
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Sr
             C
                  3+
                             Te
                                          Ni
                                               6+
                      );
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Sr
             Ar
                 3+
                             Te
                                          Cu
     1+
                                               6+
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                                                           La
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                                                                        Sn
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Sr
    1+
             Τi
                 4+
                             Xe
                                  0+
                                          Pr
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                                                                1+
                       );
                                                                       Sm
                                                                            3+
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Sr
     1+
            Te
                 4+
                      );
                             Xe
                                          Nd
                                               3+
                                                    );
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                                                        (
     3+
                 6+
            Nb
                      );
                             La
                                          Tc
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46. (Pre

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s I y

Pre

$$\frac{\hbar^2 \sqrt{s(s+1)}}{8\mu_e a_0^2 \left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi \mu_0 e^2 \hbar^2}{m_e^2 a_0^3} \left[1 + \frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right]$$

sented) A method according to claim 30, wherein increased binding energy hydride ions are formed having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

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where p is an integer greater than 1, s = $\frac{1}{2}$, \hbar is Plank's constant bar, μ_0 is the permeability of vacuum, m_e is the mass of the electron, μ_e is the reduced electron mass, a_0 is the Bohr radius, and e is the elementary charge.

- 47. (Previously Presented) A method according to claim 46, wherein p is 2 to 200.
- 48. (Previously Presented) A method according to claim 46, wherein a cation migrates through a salt bridge and forms a neutral compound with said hydride ion.
- 49. (Previously Presented) A method according to claim 30, wherein the increased binding energy hydride ion has a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, 19.2 or 0.65 eV.
- 50. (Previously Presented) A method according to claim 30, further comprising the step of decomposing a compound containing at least one hydrino atom to provide said hydrino atoms.
- 51. (Previously Presented) A method according to claim 50, wherein said compound containing a hydrino atom comprises:
 - (a) at least one neutral, positive or negative increased binding energy hydrogen species having a binding energy:
 - (i) greater than the binding energy of the corresponding ordinary hydrogen species, or
 - (ii) greater than the binding energy of any hydrogen species for which the corresponding ordinary hydrogen species is unstable

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or is not observed because the ordinary hydrogen species' binding energy is less than thermal energies at ambient conditions, or is negative; and

(b) at least one other element, wherein said increased binding energy hydrogen species is selected from the group consisting of H_n , H_n^- , and H_n^+ , where n is an integer of 1 to 8, and n is greater than 1 when H has a positive charge.

52. (Previously Presented) A fuel cell comprising:

a vessel having first and second compartments;

a source of at least one increased binding energy hydrogen species associated with said first compartment;

a cathode in said first compartment;

an anode in said second compartment; and

a salt bridge connecting said anode and said cathode.

53. (Previously Presented) A fuel cell comprising:

a first walled structure defining an internal volume, wherein at least one wall comprises a cathode;

a second walled structure defining an internal volume containing an anode; a salt bridge connecting the internal volumes of said first and second walled structures;

a source of reductant associated with said second walled structure; and a source of hydrino atoms associated with said first walled structure.

54. (Previously Presented) A fuel cell according to claim 52, wherein the increased binding energy species is hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8,

Page 26

47.1, 34.6, 19.2 or 0.65 eV.

55. (Previously Presented) A fuel cell comprising:

a first walled structure defining an internal volume, wherein at least one wall comprises a cathode;

a second walled structure defining an internal volume containing an anode; a salt bridge connecting the internal volumes of said first and second walled structures;

a source of reductant; and

a source of hydrino atoms.

56. (Previously Presented) A fuel cell according to any one of claims 1, 15, 16, 18, 20, 22-29 and 52, wherein said cathode is said first compartment.

57. (Previously Presented) A fuel cell according to claim 15, wherein said source of hydrino atoms comprises at least one of an electrolytic cell, a gas cell, a gas discharge cell or plasma torch cell.

58. (Previously Presented) A fuel cell according to claim 15, wherein said source of hydrino atoms comprises a compound comprising hydrino atoms that releases hydrino atoms when thermally decomposed by heating or chemically decomposed by reaction with an element that replaces hydrino atoms, hydrino hydride ions, dihydrino molecular ions or dihydrino molecules.-

59. (Previously Presented) A fuel cell comprising:

a first compartment containing a cathode;

a source of hydrino atoms associated with said first compartment, wherein the source of hydrino atoms comprises a compound containing at least one hydrino atom;

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a second compartment containing an anode;

a source of reductant associated with said second compartment; and

a salt bridge between said anode and said cathode.

60. (New) A fuel cell according to claim 59, wherein the source of hydrino comprises LiH.